

WHAT IS CLAIMED IS:

1. A method of draining a pseudocyst present within a patient, said method comprising the steps of:

(a) providing a stent, said stent being transformable from a non-expanded state of comparatively lesser diameter to an expanded state of comparatively greater diameter, said stent having a first end and a second end;

(b) delivering said stent in said non-expanded state to a pseudocyst located within a patient;

(c) inserting said first end of said stent into the pseudocyst; and

(d) transforming said stent from said non-expanded state to said expanded state;

(e) whereby the pseudocyst drains through said stent.

2. The method as claimed in claim 1 further comprising the step of inserting said second end of said stent into the stomach of the patient whereby the pseudocyst drains through said stent into the stomach.

3. The method as claimed in claim 2 further comprising, prior to said first end and second end inserting steps, forming a perforation in each of the pseudocyst and the stomach and wherein said first end inserting step comprises inserting said first end of said stent through said perforations in the pseudocyst and the stomach.

4. The method as claimed in claim 1 wherein said stent is a self-expandable stent.

5. The method as claimed in claim 4 wherein said delivering step comprises maintaining said stent in said non-expanded state using a removable restraint and wherein said transforming step comprises removing said removable restraint from said stent to allow said stent to self-expand.

6. The method as claimed in claim 4 wherein said delivering step comprises mounting said stent on the distal end of a catheter in said non-expanded state using a removable restraint and then inserting the distal end of said catheter into a patient in the area of a pseudocyst.

7. The method as claimed in claim 6 wherein said catheter inserting step is performed intraorally using an endoscope.

8. The method as claimed in claim 4 wherein said stent is shaped to include a waist of comparatively lesser expanded diameter and a pair of cuffs on opposite ends of said waist of comparatively greater expanded diameter.

9. The method as claimed in claim 8 wherein said stent is made of a biocompatible nonabsorbable material.

10. The method as claimed in claim 8 wherein said stent is made of a biocompatible nonabsorbable polymeric material.

11. The method as claimed in claim 8 wherein said stent is made of a bioabsorbable material.

12. The method as claimed in claim 8 wherein said waist has an expanded diameter of about 8-10 mm, each of said cuffs has an expanded diameter of about 15 mm, and wherein each of said waist and said cuffs has a length of about 5-10 mm.

13. The method as claimed in claim 4 wherein said stent has a uniform expanded diameter.

14. The method as claimed in claim 4 wherein said stent is made of a braided filamentary material.

15. The method as claimed in claim 1 wherein said stent is a balloon-expandable stent.

16. The method as claimed in claim 15 wherein said delivering step comprises mounting said balloon-expandable stent, in said non-expanded state, over a deflated balloon catheter and then

inserting said deflated balloon catheter into a patient in the area of a pseudocyst and wherein said transforming step comprises inflating said deflated balloon catheter until said balloon-expandable stent is transformed from said non-expanded state to said expanded state.

17. The method as claimed in claim 1 wherein said stent is a balloon-expandable covered stent.

18. The method as claimed in claim 17 wherein said delivering step comprises mounting said balloon-expandable covered stent, in said non-expanded state, over a deflated balloon catheter and then inserting said deflated balloon catheter into a patient in the area of a pseudocyst and wherein said transforming step comprises inflating said deflated balloon catheter until said balloon-expandable covered stent is transformed from said non-expanded state to said expanded state.

19. The method as claimed in claim 1 wherein said stent is nonabsorbable, said method further comprising the step of endoscopically removing said stent with a snare after drainage of the pseudocyst is complete.

20. A method of draining a pseudocyst present within a patient, said method comprising the steps of:

(a) providing a double pigtail stent, said double pigtail stent having a first end and a second end, each of said first and second ends being transformable from a straightened state, when constrained, to a curled state, when relaxed;

(b) coaxially mounting said double pigtail stent over the distal end of a catheter, whereby each of said first and second ends is in said straightened state;

(c) endoscopically introducing said double pigtail stent and the distal end of said catheter through the mouth and into the stomach of a patient in the vicinity of a pseudocyst;

(d) sliding said first end of said double pigtail stent off the distal end of said catheter, through the stomach and into the pseudocyst, whereby said first end is transformed from said straightened state to said curled state; and

(e) sliding said second end of said double pigtail stent off the distal end of said catheter into the stomach, whereby said second end is transformed from said straightened state to said curled state;

(f) whereby the pseudocyst drains through said stent into the stomach.

21. The method as claimed in claim 20 further comprising, after said endoscopic introducing step and before said sliding steps, the step of forming a perforation in each of the stomach and the pseudocyst and wherein said first end sliding step comprises sliding said first end of said double pigtail stent off the distal end of said catheter and through the perforations in the stomach and pseudocyst, respectively.

22. The method as claimed in claim 21 wherein the distal end of said catheter includes a balloon, said method further comprising, after said perforation forming step and before said sliding steps, the steps of inserting said balloon into said perforations, then inflating said balloon, then deflating said balloon and withdrawing said balloon from said perforations.

23. The method as claimed in claim 20 further comprising the step of endoscopically removing said double pigtail stent with a snare after drainage of the pseudocyst is complete.

24. A stent delivery system comprising:

(a) an inner catheter, said inner catheter being provided with a first longitudinally extending lumen;

(b) perforating means slidably disposed in said first longitudinally extending lumen;

(c) an outer catheter, said outer catheter surrounding at least a portion of the length of said inner catheter and adapted for axial movement relative to said inner catheter; and

(d) a self-expandable stent, said self-expandable stent disposed between said inner catheter and said outer catheter;

(e) wherein said outer catheter is dimensioned to maintain said self-expandable stent in a compressed state.

25. The stent delivery system as claimed in claim 24 wherein said self-expandable stent is coaxially mounted over said inner catheter.

26. The stent delivery system as claimed in claim 24 wherein said self-expandable stent is made of braided filamentary material.

27. The stent delivery system as claimed in claim 24 wherein said self-expandable stent is made of nonabsorbable material.

28. The stent delivery system as claimed in claim 24 wherein said self-expandable stent is made of nonabsorbable plastic material.

29. The stent delivery system as claimed in claim 24 wherein said self-expandable stent is made of bioabsorbable material.

30. The stent delivery system as claimed in claim 24 wherein said self-expandable stent has a uniform expanded diameter.

31. The stent delivery system as claimed in claim 24 wherein said self-expandable is shaped to include a waist of comparatively lesser expanded diameter and a pair of cuffs on opposite ends of said waist of comparatively greater expanded diameter.

32. The stent delivery system as claimed in claim 31 wherein said waist has an expanded diameter of about 8-10 mm, each of said cuffs has an expanded diameter of about 15 mm, and wherein each of said waist and said cuffs has a length of about 5-10 mm.

33. The stent delivery system as claimed in claim 24 wherein said perforating means comprises a retractable needle.

34. The stent delivery system as claimed in claim 24 wherein said inner catheter is further provided with a second longitudinal lumen, said stent delivery system further comprising a guide wire slidably disposed in said second longitudinal lumen.

35. A stent delivery system comprising:

(a) a catheter, said catheter having a proximal end, a distal end, a first lumen extending longitudinally through said distal end and a second lumen extending longitudinally and having a proximal end connected to a gas line and a distal end terminating in a balloon section;

(b) perforating means slidably disposed in said first lumen; and

(c) a balloon-expandable stent coaxially mounted over said balloon section of said catheter.

36. The stent delivery system as claimed in claim 35 wherein said balloon-expandable stent is a balloon-expandable covered stent.

37. The stent delivery system as claimed in claim 35 further comprising a sheath, said sheath surrounding at least a portion of the length of said catheter and said balloon-expandable stent and being adapted for axial movement relative to said catheter.

38. The stent delivery system as claimed in claim 35 wherein said perforating means comprises a retractable needle.

39. The stent delivery system as claimed in claim 35 wherein said catheter further comprises a third lumen extending longitudinally through said distal end and wherein said stent delivery system further comprises a guide wire slidably disposed in said third lumen.

40. The stent delivery system as claimed in claim 39 wherein said catheter further comprises a fourth lumen extending longitudinally through said distal end, said fourth lumen being connected at its proximal end to a line containing dye for use in performing a cystogram.

41. A stent delivery system comprising:

(a) a catheter, said catheter having a proximal end, a distal end, a first lumen extending longitudinally through said distal end, and a second lumen extending longitudinally and having a proximal end connected to a gas line and a distal end terminating in a balloon section;

(b) perforating means slidably disposed in said first lumen; and

(c) a first pigtail stent coaxially and slidably mounted over said catheter proximal to said balloon section.

42. The stent delivery system as claimed in claim 41 further comprising a pusher sleeve coaxially and slidably mounted over said catheter proximal to said first pigtail stent for pushing said first pigtail stent off said distal end of said catheter.

43. The stent delivery system as claimed in claim 41 further comprising a second pigtail stent coaxially and slidably mounted over said catheter proximal to said balloon section and distal to said first pigtail stent.

44. The stent delivery system as claimed in claim 41 wherein said perforating means comprises a retractable needle.

45. The stent delivery system as claimed in claim 41 wherein said catheter further comprises a third lumen extending longitudinally through said distal end and wherein said stent delivery system further comprises a guide wire slidably disposed in said third lumen.

46. The stent delivery system as claimed in claim 45 wherein said catheter further comprises a fourth lumen extending longitudinally through said distal end, said fourth lumen being connected at its proximal end to a line containing dye for use in performing a cystogram.